DOCUMENT RESUME

ED 046 408 LI 002 423

AUTHOR	Whittenburg, John A.; Baker, Gail L.
TITLE	Exploratory Investigation of Information Needs of Individuals and Institutions.
INSTITUTION	American Psychological Association, Washington, D.C.
REPORT NO	OCMD-11-70-TR-11
PUB DATE	Nov 70
NOTE	23p.
AVAILABLE FROM	National Information System for Psychology, American Psychological Association, 1200 Seventeenth Street, N.W. Washington, D.C. 20036
EDRS PRICE	EDRS Price MF-$0.65 HC Not Available from EDRS.
DESCRIPTORS	*Individual Needs, *Information Needs, *Institutions, Psychology, Publications, Questionnaires, Research, Use Studies
IDENTIFIERS	*National Information System for Psychology, NISP

ABSTRACT

Two questionnaires were sent to individual and institutional subscribers to the American Psychological Association's Experimental Publication System (EPS) to investigate types of manuscripts and lengths of information units needed to support different job-related tasks. Basic findings from the questionnaire sent to individuals were that review or summary articles were most frequently judged useful, while theoretical articles were judged least useful. Also, almost all of the respondents selected abstracts or short versions to support their job-related tasks, but very few selected citations or complete text. With regard to the relationship between types of articles selected and work settings, those involved in basic research or training and education indicated the need for a greater range of types of articles than did those involved in applied research or management. Findings from the questionnaire sent to institutions were that descriptors used by academic institutions to characterize their subject matter requirements were more abstract and more discipline- and content-oriented, while those used by non-academic organizations were less abstract and more problem- and specialty-oriented. These findings have implications for designing EPS to better meet individual and institutional information needs. (Author)

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL BY MICROFICHE ONLY HAS BEEN GRANTED BY

American Psychological Association

TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE U.S. OFFICE OF EDUCATION FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

ED046408

Exploratory Investigation of Information Needs of Individuals and Institutions

John A. Whittenburg and Gail L. Baker

NISP

L5002423

November 1970

National Information System (for) Psychology / American Psychological Association

1200 Seventeenth Street, N. W. • Washington, D. C. 20036

ED046408

OCMD-11/70-TR#11

EXPLORATORY INVESTIGATION OF INFORMATION NEEDS OF INDIVIDUALS AND INSTITUTIONS

John A. Whittenburg and Gail L. Baker
Consultants

November 1970

Office of Communication Management and Development
AMERICAN PSYCHOLOGICAL ASSOCIATION
1200 Seventeenth Street, N.W.
Washington, D.C. 20036

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Preface

Since its founding in 1892, the American Psychological Association has actively promoted the exchange of scientific information among psychologists. In recent years, APA has been able to increase and structure these efforts with grant support from the National Science Foundation. APA's Office of Communication Management and Development began to prepare a plan for the development of a National Information System for Psychology in June 1968. As an aid to system planning, the Experimental Publication System was initiated in August 1969.

This report describes a part of the Experimental Publication System research program, a comparison between the responses obtained from individuals and representatives of institutions to questionnaires regarding their information needs. The similarities and differences found between the samples in this study have provided insights into some of the characteristics that must be taken into account in the design of a publication system that adequately provides information to psychologists in support of different job-related tasks.

John A. Whittenburg and Gail L. Baker, serving as consultants for APA, developed the questionnaires, conducted the analysis of the data, and prepared this report. Thanks are due to Robert G. Kinkade for his guidance throughout the study and to Merle Wax for her help during the planning and execution of the study.

Harold P. Van Cott

Harold P. Van Cott, Director
Office of Communication
Management and Development

Highlights of Findings

Two questionnaires were sent to individual and institutional subscribers to the American Psychological Association's Experimental Publication System (EPS) to investigate types of manuscripts and lengths of information units needed to support different job-related tasks.

Basic findings from the questionnaire sent to individuals were that review or summary articles were most frequently judged useful, while theoretical articles were judged least useful. Also, almost all of the respondents selected abstracts or short versions to support their job-related tasks, but very few selected citations or complete text. With regard to the relationship between types of articles selected and work settings, those involved in basic research or training and education indicated the need for a greater range of types of articles than did those involved in applied research or management.

Findings from the questionnaire sent to institutions were that descriptors used by academic institutions to characterize their subject matter requirements were more abstract and more discipline- and content-oriented, while those used by non-academic organizations were less abstract and more problem- and specialty-oriented.

These findings have implications for designing EPS to better meet individual and institutional information needs.

EXPLORATORY INVESTIGATION OF INFORMATION NEEDS OF INDIVIDUALS AND INSTITUTIONS

In 1968, the American Psychological Association received a grant from the National Science Foundation to develop a plan for establishing a National Information System for Psychology (NISP). Three long-range objectives of NISP are: (a) to provide products and services that enhance the productivity of research, (b) to facilitate the application of scientific results, and (c) to advance the science. As one means of obtaining information concerning the characteristics of a system that would meet these objectives, it was decided to establish an Experimental Publication System (EPS).

A key concept in the establishment of EPS was that of having subscribers and contributors assist in the planning and implementation of the system. Letters, responses to questionnaires, and interview findings would be used to guide the evolution of EPS in particular and of NISP in general.

EPS is essentially a preprint service. During the first year of publication, only manuscripts in the area of applied psychology were accepted by EPS and distributed as individual units. Three categories based on subject matter classification of articles submitted to the Journal of Applied Psychology were used by EPS. Manuscripts were distributed by these categories to help limit the amount of irrelevant material sent to subscribers. The following three categories were used:

Management and organizational behavior: prediction of performance, performance evaluation, measures of job satisfaction, matters relating to work organization by management, organizational psychology;

Psychology and the work environment: man-machine relations, work methods, fatigue, accidents, applied experimental psychology, safety, human factors, vigilance, programmed learning in the industrial setting;

Industrial psychological measurement: personnel selection, test development, measurement of individual characteristics, use of various kinds of prediction devices in various settings.

It should be noted that based on subscribers' expressed needs and interests, the categories used by EPS during its second year of publication are the following six: organizational behavior and the work environment, industrial psychological measurement, special education, educational techniques, family counseling and guidance, and vocational and educational guidance. These categories include the areas of education and counseling in addition to applied psychology.

A catalog of abstracts is published for each EPS issue. During the first year, the catalog was automatically included with a subscription to any of the subject matter categories, and subscribers could order individual manuscripts from any of the categories. A subscriber might: (a) subscribe to all the manuscripts published by the system; (b) subscribe to only those categories that matched his interests, and review abstracts of the other manuscripts; or (c) subscribe only to the catalog of abstracts and order only those manuscripts that were of specific interest to him. A more detailed description of EPS characteristics and subscriber reactions to these characteristics was prepared by Kinkade (1970).

The planning and development of EPS was completed during the 5-month period from March 1969 through July 1969, and the first bimonthly issue was distributed in August 1969. With the first issue of EPS, five different questionnaires were forwarded to randomly selected samples of subscribers. Two of these five questionnaires are discussed in the present report.

One questionnaire was sent to individuals subscribing only to the catalog of abstracts. Findings of this questionnaire, referred to as the Individuals Questionnaire, are discussed in Part A. The purpose of the Individuals Questionnaire was to determine the information needs of individuals with different professional responsibilities.

Another questionnaire was sent to representatives of institutions subscribing to any of the EPS alternatives. Findings of this questionnaire, referred to as the Institutions Questionnaire, are discussed in Part B. The purpose of the Institutions Questionnaire was to determine in what ways the information needs of professionals in different institutional environments are different in type and scope.

The particular information requirements investigated concerned the types of manuscripts and the lengths of information units needed to support different job-related tasks. Data relevant to these questions would contribute to the design of a system that supports the diverse job-related information needs of psychologists. The responses to each questionnaire are analyzed, and hypotheses are presented. Suggestions for future surveys are also made.

Part A: Individual Information Needs

The Individuals Questionnaire was sent to a random half of the catalog of abstracts subscribers, 81 individuals. Fifty subscribers, 62% of the sample, returned completed questionnaires.

Comparison of Respondents, Catalog of Abstracts Subscribers, and EPS Subscribers

To place the results in context and to check on the representativeness of the sample, comparisons are made with regard to personal characteristics and employment characteristics.

It has already been demonstrated that EPS subscribers are generally representative of the total APA membership in terms of personal characteristics, and that they differ somewhat in terms of employment characteristics (Kinkade & Whittenburg, 1970). This difference may be due to the specialized subject matter coverage of EPS.

Before any generalizations can be made from the Individuals Questionnaire responses, it must first be determined if the respondents are representative of all subscribers to the catalog of abstracts. A comparison of the characteristics of respondents who are APA members, 72%, with the characteristics of all catalog of abstract subscribers who are APA members is presented in **Figure 1**.

There were some minor differences in the personal characteristics of the respondents and all catalog of abstracts subscribers. There was little difference in age. However, a smaller percentage of the respondents hold only masters degrees (15%, as compared with 24% of all subscribers), while more respondents than subscribers hold the doctorate. In addition, the largest percentage of respondents (45%, as compared with 36%) earned their highest degree within the last 10 years, while the largest

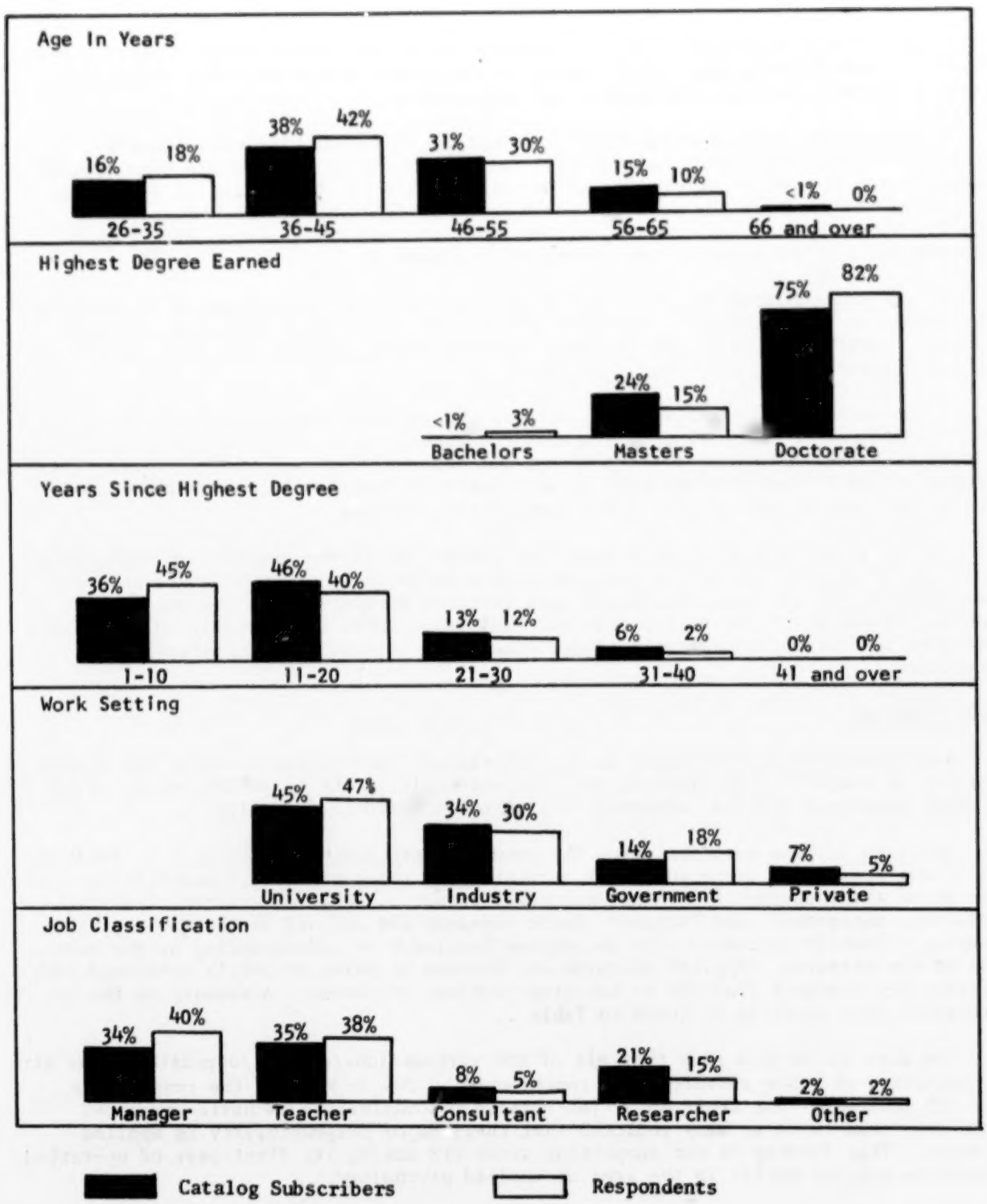

FIGURE 1. Descriptive characteristics of subscribers to the catalog of abstracts who are APA members and of respondents to the Individuals Questionnaire who are APA members.

percentage of all subscribers (46%, as compared with 40%) earned their highest degree between 11 and 20 years ago. With regard to employment characteristics there was little difference between respondents and subscribers.

A second type of comparison is also important to explore the relationship between an individual's personal and employment characteristics and his subscription alternative. It must be determined if the subscribers to the catalog of abstracts are similar to or different from the total group of EPS subscribers. Comparative data for subscribers to the catalog of abstracts who are APA members, and EPS subscribers who are APA members, are presented in **Figure 2.**

It can be seen from Figure 2 that there was virtually no difference between the subscribers to the catalog of abstracts and all EPS subscribers with regard to the personal characteristics of age in years, highest degree earned, and years since highest degree.

There were, however, differences between the catalog subscribers and all of the EPS subscribers with regard to employment characteristics. The two groups were similar with regard to work setting except for industrial affiliations. Forty-three percent of the EPS subscribers work in an industrial setting, but a smaller proportion of the catalog subscribers (34%) work in this setting.

The major difference found between the groups was in the area of job classification. While only 6% of the EPS subscribers are researchers, a much larger proportion (21%) of the catalog subscribers have research as their major responsibility. From this finding, it may be hypothesized that researchers rely heavily on titles and abstracts as a means for screening large amounts of scientific and professional literature.

Basic Findings

Four questions were included in the Individuals Questionnaire, which the respondent was to complete after looking over the materials in the first EPS issue. Each of these questions and the responses to it are discussed individually.

Question 1. The question asked the respondent to indicate "the task or function which most accurately represents your current major responsibility," and five options were given the respondents. These were basic research, applied research, training/education, management, and "other." Basic research was defined on the questionnaire as being primarily concerned with increasing knowledge or understanding as the objective of the research. Applied research was defined as being primarily concerned with applying the research findings to existing problems or issues. A summary of the responses to this question is shown in **Table 1.**

The data in Table 1 show that all of the various job-related responsibilities with the exception of basic research were represented by 20% or more of the respondents. Only 12% indicated that their major job-related responsibility is basic research, while more than twice as many indicted that their major responsibility is applied research. This finding is not surprising since EPS during its first year of operation focused on subject matter in the area of applied psychology.

The 8% of the respondents who checked the remaining category, "other," used the following job-related descriptors: clinical counseling, service, industrial consulting, and graduate studies.

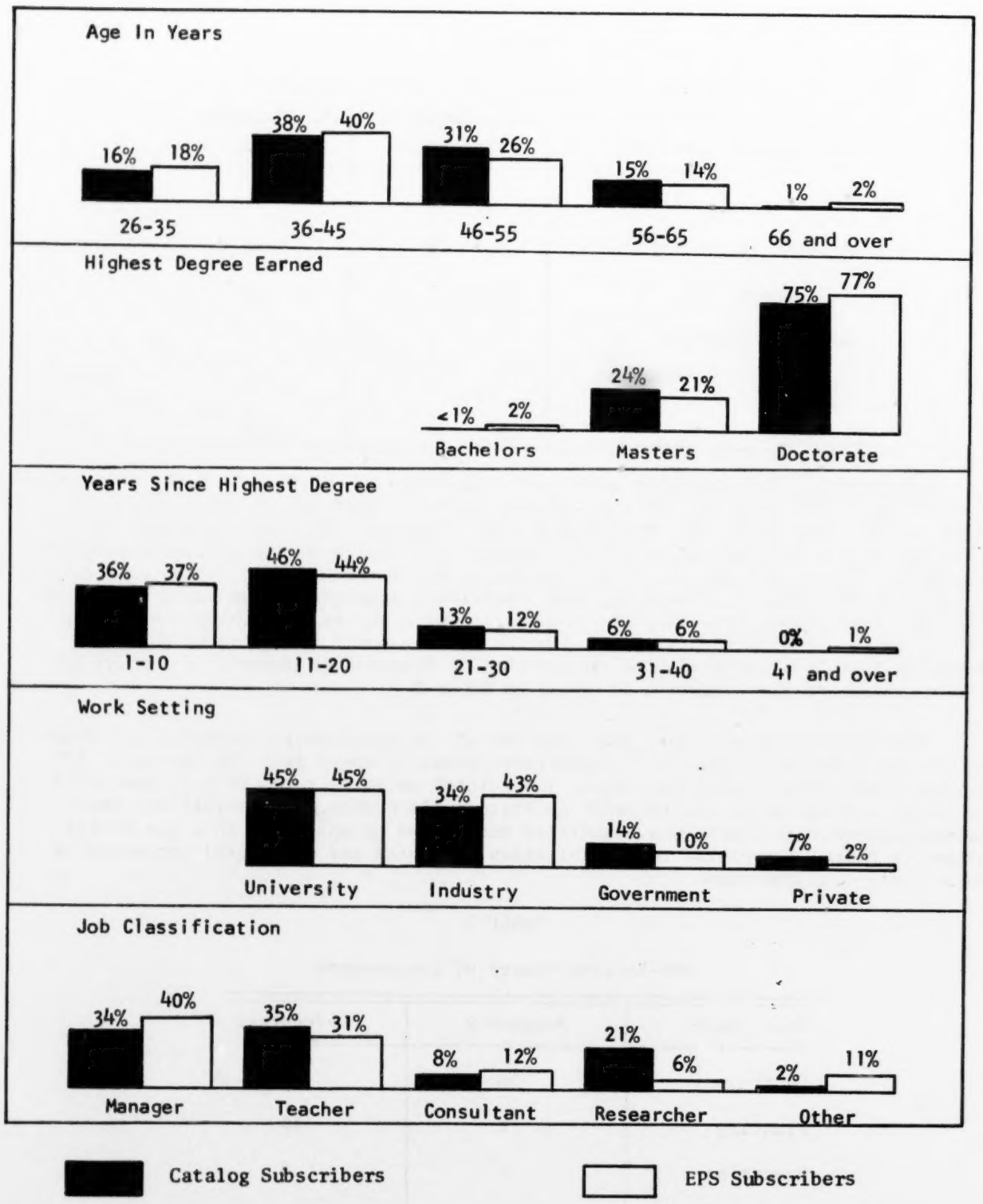

FIGURE 2. Descriptive characteristics of subscribers to the catalog of abstracts who are APA members and of EPS subscribers who are APA members.

TABLE 1

Job-Related Responsibilities of Respondents

Job-related function	Frequency	Percentage
Training/education	16	32
Applied research	14	28
Management	10	20
Basic research	6	12
Other	4	8
Total	50	100

Question 2. This question asked the respondent to indicate "the phase in which you are currently involved for the selected task or function" in Question 1, and four options were given the respondents. The first was the planning phase, which includes activities such as research planning, curriculum development, and program planning. The second was the execution phase, which includes activities such as performing the research, teaching, and supervising a program. The third option was the reporting phase, involving the preparation of a report describing the outcome of the task. The fourth option was labeled "continuous," referring to the task/function that is of a continuous nature with no discernible phases. A summary of the responses to this question is shown in Table 2.

The data in Table 2 show that only 28% of the respondents characterized themselves as being in a specific, identifiable phase of their job. In contrast, 72% of the respondents stated that their job-related activities can best be described as being continuous in nature, with no discernible phases. The relatively small percentage of individuals who identified themselves as operating in a particular phase of their job-related responsibilities prohibits any meaningful pursuance of this particular question.

TABLE 2

Job-Related Phases of Respondents

Task phase	Frequency	Percentage
Continuous	36	72
Planning	8	16
Execution	4	8
Reporting	2	4
Total	50	100

Question 3. The question asked the respondent to indicate "the types of articles which you feel would best support your information requirements" during the phase of the task/function indicated in Question 2. Six options were given the respondents, and all applicable categories were to be indicated. The options were review of summary, theoretical, empirical or data-based, methodological, new devices, and other types of articles. Methodological articles were defined as those describing new experimental, observational, or statistical methods. Articles about new devices were identified as those describing new technical devices such as those used for measurement or manipulation. A sumary of the responses to this question is shown in **Table 3**.

TABLE 3

Relative Need for Different Types of Articles
by Individuals (N = 50)

Type of articles required	Frequency	Percentage
Review or summary	43	86
Empirical or data-based	33	66
Methodological	21	42
New devices	21	42
Theoretical	15	30
Other	1	2
Total	134	--
Average	2.7	--

The data in Table 3 show that review or summary articles were most frequently judged useful. Eighty-six percent of the respondents judged them as being useful in support of their job-related information needs. The next most useful type of articles were those of a data-based, empirical nature, checked by 66% of the respondents. Two types were considered of equal job-related importance. Both methodological articles and articles describing new devices were checked by 42% of the respondents. Articles of a theoretical nature were least frequently judged useful, with only 30% of the respondents indicating articles of this type to be helpful to them in support of their job-related functions. The one respondent who checked the remaining category, "other," identified essays as being particularly useful to him in support of his work.

Question 4. This question was concerned with alternative ways of packaging information into catalogs. The respondents were asked to indicate "at the present phase in your task or function which type(s) of packaging would best meet your information needs," and four options were given the respondents. These were catalog of citations, catalog of abstracts, catalog of short versions, and catalog of complete versions. Citations include only the title, which is approximately 10 words in length. Abstracts are from 100 to 200 words in length, while there is no limit to the number of words in the complete version. Short versions of study were

defined in the questionnaire as being intermediate in length between abstracts and full accounts. Examples of this type of document condensation, from 1,500 to 1,800 words in length, can be found in the Proceedings of the APA Annual Convention.

The respondent could select more than one method of packaging. If this were done, the selections were to be ranked, with the number 1 representing the first choice. Half of the respondents, 25, checked only one length of information unit. Of the remaining half, 13 respondents ranked two of the alternatives, 1 ranked three of the alternatives, and 10 ranked all four of the alternatives. One respondent did not check any of the alternatives. To combine the rank-ordered data with the single selections, the single selections were assigned the rank of 1. A summary of the responses to this question is shown in Table 4.

TABLE 4

Frequency of Rank Order of Different Length Catalog Information Units for a Given Issue

Information unit	Rank order				Total frequency	Average rank
	1	2	3	4		
Short versions	22	10	2	0	34	1.4
Abstracts	24	10	4	0	38	1.5
Citations	2	1	4	4	11	2.9
Complete versions	2	2	1	6	11	3.0

The data in Table 4 show that almost all of the respondents selected either the abstracts or the short versions as their first or second choice. Very few respondents thought that either a list of citations or a collection of complete versions would meet their information needs.

Related Findings

Examination of the responses to the four questions suggests a number of interesting relationships among the data. Some of these relationships are revealed by comparing individual responses to different questions.

Question 1 and Question 3. The first comparison concerns choices made of different types of articles by individuals who have different major job-related responsibilities. Data relating the responses obtained to Question 1 with those obtained to Question 3 are presented in Table 5.

The most revealing finding was the average frequency with which different types of articles were selected. The respondents who indicated basic research to be their major responsibility checked an average of 3.5 types of articles. Those in the area of training/education indicated that an average of 3.1 different types of articles are helpful in support of their job-related functions, while those in management and applied research selected, on the average, approximately 2 of the available alternatives. This preliminary finding suggests that those in the academic environment, that is, those whose major responsibility is either basic research or training and education, feel the need for a greater range of types of articles to support their work than do those in the more commercially oriented environments of applied research and management.

TABLE 5

Types of Articles Selected by Respondents with Different Job-Related Responsibilities

Type of articles required	Job-related function			
	Basic research (n = 6)	Training/ education (n = 16)	Management (n = 10)	Applied research (n = 14)
Review or summary	5	16	8	11
Theoretical	3	8	2	1
Empirical or data-based	5	11	6	8
Methodological	4	8	4	3
New devices	4	6	3	5
Total frequency	21	49	23	28
Average frecuency	3.5	3.1	2.3	2.0

To examine this hypothesis further, the organizational affiliations of the 50 respondents were determined. Almost all of those checking either basic research or training/education as their major responsibility have academic affiliations, while almost all of those checking either applied research or management have affiliations other than with academic institutions. Since this dichotomy exists, data from the pair of functions in each of the two categories were combined to learn more about the relationship between types of articles selected and work settings. These data are presented in **Table 6**.

The data in Table 6 reveal some interesting aspects of the relationship between types of articles selected and work settings. Eighty-one percent of the respondents in nonacademic work settings considered review articles to be of utility, while only 15% judged theoretical articles to be relevant to their job-related tasks. Almost all respondents in academic institutions, on the other hand, considered both of these types of articles to be of utility.

The next most frequently mentioned type of articles for both academicians and nonacademicians were empirical articles, with over half of the respondents in each work setting selecting the category.

Half of the respondents affiliated with academic institutions selected methodological articles, and almost half identified articles about new devices as being relevant to their information requirements. On the other hand, about one-quarter of the respondents affiliated with nonacademic organizations thought that methodological articles are needed, and about the same proportion stated that articles about new devices are needed to support their information needs.

TABLE 6

Comparison of the Information Requirements of Those in Academic and Those in Nonacademic Work Settings

Type of articles required	Work setting			
	Academic (n = 24)		Nonacademic (n = 26)	
	Frequency	Percentage	Frequency	Percentage
Review or summary	22	92	21	81
Theoretical	22	92	4	15
Empirical or data-based	16	67	14	54
Methodological	12	50	7	27
New devices	10	42	8	31
Total	82	--	54	--
Average	3.4	--	2.1	--

Question 1 and Question 4. The second comparison concerns choices made of different length information units by individuals from different work settings. Data relating the responses obtained to Question 1 with those obtained to Question 4 are presented in Table 7. It was felt that again combining the job-related categories according to academic and nonacademic work settings would provide a clearer picture of the findings. The highest rank is 1, and 4 is the lowest.

TABLE 7

Average Rank of Different Length Information Units by Respondents from Different Work Settings

Length of information unit	Work setting			
	Academic (n = 24)		Nonacademic (n = 26)	
	No. of respondents	Average rank	No. of respondents	Average rank
Abstracts	18	1.4	18	1.5
Short versions	14	1.6	19	1.3
Citations	5	2.4	5	3.0
Complete versions	5	3.0	4	3.0

The data in Table 7 show little or no difference between academic and non-academic respondents with respect to their choice of abstracts versus short versions. Both seem to be desired almost equally.

Discussion

Although the size of the sample was relatively small, it was quite representative of the subscribers to the EPS catalog of abstracts. With the exception of percentage of researchers, which is larger, subscribers to the catalog of abstracts are similar to the total EPS subscriber population.

The respondents to the Individuals Questionnaire represented a range of designated job-related responsibilities. This finding is interesting in three ways. First, only those individuals who subscribe to the catalog of abstracts were sent the questionnaire. Therefore, the occupational diversity of the respondents suggests that the catalog of abstracts is consistently considered a useful information support tool even though individuals have different job-related functions. The usefulness of the catalog of abstracts regardless of subscription alternative is discussed in Part B.

Second, the different occupational categories were fairly evenly represented, with the exception of basic research. This finding will be helpful in planning future questionnaire-based investigations with regard to professional roles and information needs.

Third, almost half of the respondents reported being engaged in research. Research, by its very nature, consists of a number of phases -- planning, execution, and reporting. However, only a small number of respondents claimed that they were currently involved in some particular phase of their work. This finding is rather surprising. It is possible that many of the respondents were involved in several overlapping research projects, in which case the effort was seen as continuous rather than in some particular phase. The reason for the rather large number of individuals who characterized their work as being continuous in nature rather than in a particular phase should be pursued.

Part B: Institutional Information Needs

The Institutions Questionnaire was sent to half of the institutional subscribers to EPS. Of the randomly selected 42 institutions that received the questionnaire, 20 institutions, or 78% of the sample, returned completed questionnaires.

Findings

Six questions were included in the questionnaire. To ensure that the responses to the questionnaire would, in fact, be representative of the information needs of the institutions, it was asked that "an individual who is responsible for performing information support functions for the subscribing institution complete this questionnaire. These functions include such tasks as acquiring, indexing, storing, retrieving, and disseminating information to members of the organization. An appropriate individual may be the Librarian, Director of Personnel, or the Business Manager."

Question 1. The question asked the institutional representative completing the questionnaire to record his name, title, and institution. From the data obtained, it was determined that 8 of the 20 respondents (40%) represent commercial organizations, and the remaining four (20%) represent federal, state, or city government agencies.

Question 2. The question asked the respondent to indicate "the types of tasks or functions being performed at the institution which require professional or technical information," and five options were given the respondents. These were basic research, applied research, training/education, management, and "other." A summary of the responses to this question is shown in Table 8.

TABLE 8

Institutional Professional and Scientific Functions

Institutional function	Frequency	Percentage
Applied research	17	85
Training/education	17	85
Basic research	11	55
Management	7	35
Other	5	25
Total	57	--
Average	2.9	--

The data in Table 8 show that each institution performs, on the average, slightly less than three different types of professional/scientific functions.

Eighty-five percent of the institutional representatives stated that their institutions perform applied research and training/education functions. Fifty-five percent of the responding institutional organizations perform basic research, while 35% of the participants stated that management-support functions are performed by their institutions.

The data can also be considered according to type of organization, academic or nonacademic. The different professional and scientific functions performed in these work settings are presented in Table 9.

An examination of the data in Table 9 indicates, quite misleadingly, that both types of organization perform the same number of functions, nearly three on the average. It is true that the number of reported functions was quite consistent for the academic institutions: For seven of the eight institutions, three functions were listed, and two functions were listed for the remining one. The number of professional/scientific functions reported by representatives of nonacademic organizations, however, varied widely, from a low of one to a high of five. The remaining category, "other," included the following four different types of functions: consulting, personal development, services, and product design.

TABLE 9

Academic and Nonacademic Professional and Scientific Functions

Institutional function	Environment	
	Academic (n = 8)	Nonacademic (n = 12)
Applied research	7	10
Training/education	8	9
Basic research	8	3
Management	--	8
Other	--	5
Total	23	35
Average	2.9	2.9

Question 3. The question asked the respondent to "list major subject matter categories in the psychological and behavioral science disciplines which you feel would help meet the interests and would support the tasks being undertaken by the professional and technical personnel in the institution." No specific options were given the respondents.

As an aid in processing the wide variety of subject matter category designations provided by the respondents, a list of specialized subject matter areas in the psychological and behavioral science disciplines developed for use during the conduct of a previous APA project (PSIEP, 1968) was utilized. Responses have been summarized according to the major categories in this list and grouped according to type of institution, as shown in **Table 10.**

The information presented in Table 10 leads to several observations. Although the sample size of each of the institutional types was small, all of the subject matter categories were represented. One would expect that the interests of colleges and universities would cover the entire range of subject categories, and this was borne out by the data. Governmental organizations, on the other hand, were less concerned with the more basic research disciplines, but were concerned with social, educational, vocational, and clinical problems. Commercial interests were oriented primarily to vocational training, management, and personnel, but some interest in methodology and research technology was also indicated.

The data can also be viewed from a different perspective. One method of classification that the institutional respondents appear to have used concerns the specificity with which a subject area was described. The descriptors used by the respondents can be grouped into two classes -- broad subject matter areas, and specific problem areas and techniques. The findings obtained using this classification scheme are graphically summarized in **Figure 3.**

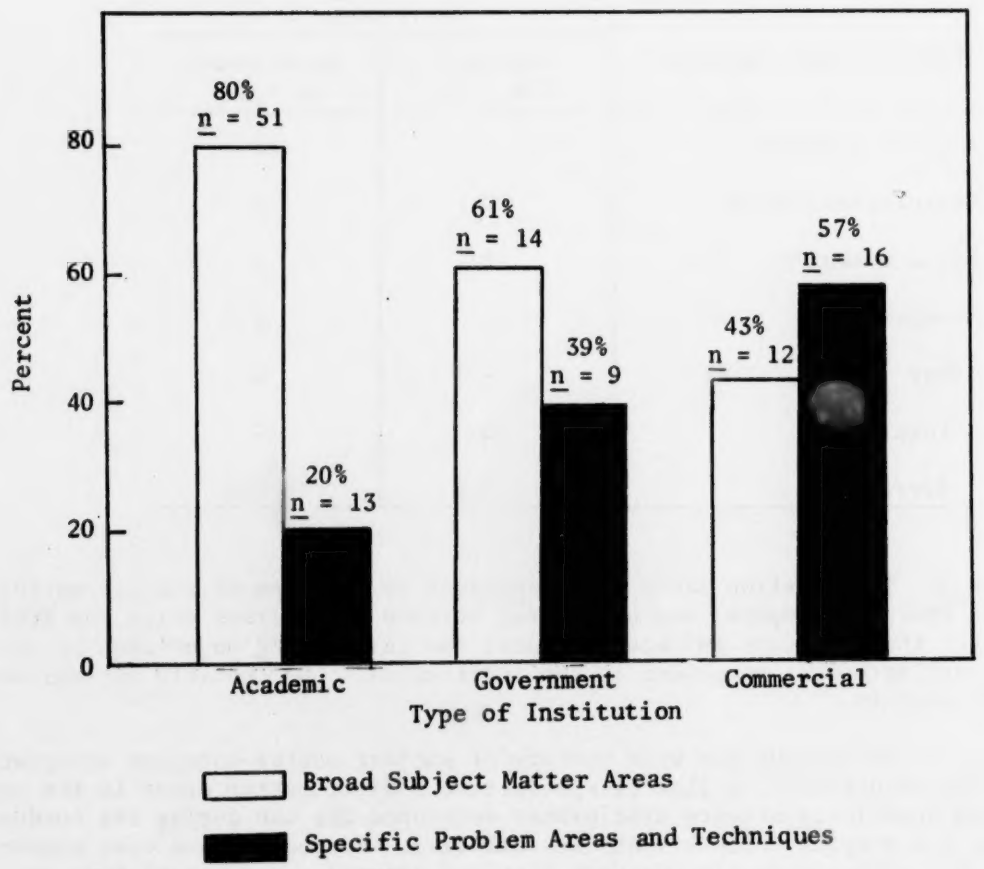

FIGURE 3. Descriptors used to identify subject matter areas of interest to institutions.

TABLE 10

Subject Matter Categories Reported by Institutions

Subject matter category	Type of institution		
	Academic (n = 8)	Commercial (n = 8)	Government (n = 4)
Methodology and research technology	5	2	--
Experimental psychology	6	--	--
Physiological psychology	3	--	--
Animal psychology	2	--	--
Developmental psychology	2	--	--
Social psychology	4	--	2
Personality and clinical psychology	6	2	2
Educational psychology	2	--	3
Military, personnel, and industrial psychology	6	8	4

Figure 3 reveals a unique aspect of the subject matter interests of participating institutions. The academic institutions categorized their interests in terms of broad subject matter areas, such as "animal behavior," "physiological psychology," and "industrial psychology." In contrast, the commercial organizations used descriptors that are less broad in scope, dealing with specific problems and techniques, including "motivation of salaried and managerial personnel" and "application of techniques such as synthetic validity." Federal, state, and city government agencies were intermediate between the academic institutions and commercial organizations in their use of broad descriptors versus specific descriptors. This finding has direct implications for the development of cataloging and indexing schemes to support the selective dissemination, storage, and retrieval of information for different types of institutions and organizations.

Question 4. The question asked the respondent to indicate "the types of articles which you feel would best support the information needs and interests of the various members of the institution," and five options were given the respondents. These were review or summary, theoretical, empirical or data-based, methodological, and other types of articles. A summary of the responses to this question is shown in Table 11.

The data in Table 11 show that the average number of types of articles selected by the 20 institutional respondents was three. Review or summary types of articles were judged by 90% of the respondents to support effectively the information requirements of the members of the various institutions. Almost equal in frequency, selected by 85% of the institutional respondents, were the empirical or data-based articles. Methodological articles were third in frequency of selection, with 65% of the

respondents checking this type as being useful to members of the institution. Least frequently selected were theoretical articles, with only about half (55%) selecting this alternative.

TABLE 11

Relative Need for Different Types of Articles by Institutions

Type of articles required	Frequency	Percentage
Review or summary	18	90
Empirical or data-based	17	85
Methodological	13	65
Theoretical	11	55
Other	1	5
Total	60	--
Average	3.0	--

Another way of organizing and presenting the findings is by again combining the data according to academic and nonacademic affiliations. A summary of these findings is presented in Table 12.

TABLE 12

Relative Need for Different Types of Articles by Academic and Nonacademic Institutions

Affiliation	Type of articles				
	Review or summary	Theo-retical	Empirical or data-based	Methodo-logical	Other
Academic (n = 8)	100%	75%	75%	88%	0%
Nonacademic (n = 12)	83%	42%	75%	67%	8%

The findings shown in Table 12 reveal three major points. First, representatives of both academic and nonacademic institutions indicated that review or summary types of articles are needed to support their institution's scientific and professional information requirements. Second, theoretical articles were considered to be relevant to their information needs by representatives of most academic institutions, while less than half of the representatives of nonacademic organizations expressed a need for this type of article. Third, equal proportions of the representatives of academic and nonacademic institutions stated that empirical or data-based articles are needed, while somewhat more of those from the academic institutions as compared with the nonacademic institutions indicated that methodological articles are needed to support their information needs.

Question 5. This question was concerned with alternative ways of packaging information into catalogs. The respondents were asked to indicate "the type of packaging which you feel would be used by the largest number of professional and technical staff in your organization," and four options were given the respondents. These were catalog of citations, catalog of abstracts, catalog of short versions, and catalog of complete versions. A summary of the responses to this question is shown in **Table 13.**

TABLE 13

Length of Catalog Information Units Selected by Institutional Subscribers

Information unit	Frequency	Percentage
Abstracts	10	50
Short versions	10	50
Citations	0	0
Complete versions	0	0
Total	20	100

The data in Table 13 show that equal need was indicated for a catalog of abstracts and a catalog of short versions. Representatives of academic institutions were slightly more interested in a catalog of abstracts ($n = 5$) than in a catalog of short versions ($n = 3$). Representatives of commercial organizations, on the other hand, were slightly more interested in a catalog of short versions ($n = 5$) than in a catalog of abstracts ($n = 3$). Governmental representatives were equally divided in their interest in the two lengths of information unit ($n = 2$ for each category). No institutional interest whatsoever was indicated for the catalog of either citations or complete versions.

Question 6. This was an open-ended question, asking the respondents to list recomendations concerning such characteristics of EPS as packaging, format, coding, dissemination, and billing. "We are concerned with recommendations that will make our procedures," the questionnaire stated, "consistent with the institution's policies, practice, and facilities pertaining to information support functions." Of 20 responding institutional representatives, 10 offered recommendations. These recommendations, classified according to different information-processing activities, are listed in **Table 14.**

Eleven different kinds of recommendations were offered. As shown in Table 14, several of the recommendations, if adopted, could aid the subscribers in performing more than one kind of information-processing activity. Most recommendations involve facilitating the screening and storing of the abstracts and manuscripts, and almost as many involve the retrieval of information. Only two of the recommendations are designed to contribute to the acquisition of information.

Discussion

A number of the findings have implications for designing EPS to better meet institutional information needs.

TABLE 14

Recommendations Classified According to Different Information-Processing Activities

Recommendation	Judged information-processing activity			
	Acquisition	Screening	Storing	Retrieval
Use descriptive titles	--	3	--	--
Provide table of contents	--	1	--	--
Provide cross referencing	--	1	--	--
Put abstracts on separate pages	--	--	1	1
Use category title on appropriate manuscripts	--	1	1	1
Number manuscripts within each category continuously	--	--	1	1
Paginate	--	--	--	1
Bind into serial by category or issue	--	--	1	1
Punch for storage in loose-leaf binder	--	--	2	--
Provide out-of-print articles	1	--	--	--
Add new categories	1	--	--	--
Total	2	6	6	5

Although the size of the sample was relatively small, there was a fairly uniform representation of academic institutions, commercial organizations, and governmental agencies. The numbers and types of scientific and professional functions performed at academic institutions were quite consistent from institution to institution. On the other hand, there was a wide range in the numbers and types of functions reported by nonacademic organizations. The information services and products designed for academic institutions may be fairly common, while a great deal of flexibility and tailoring of products and services will be required for nonacademic organizations.

Two observations can be made regarding the subject matter requirements of the academic and the nonacademic institutions. First, the descriptors used in academic organizations to characterize subject matter requirements were at a more general or broader level of abstraction. Also, the level of abstraction was more consistent in academic institutions than in nonacademic organizations. On the other hand,

nonacademic organizations, perhaps as a function of size and nature, seem to require subject matter at varying levels of abstraction. Second, the subject matter categories reported by those in academic institutions were more discipline- and content-oriented, while the subject matter categories reported by those in nonacademic organizations were more problem- and specialty-oriented. This finding is to be expected, since many nonacademic organizations are established to perform various specialized functions, or to address themselves to socially significant problems. This finding would suggest that such design characteristics as indexing schemes and subscription alternatives be differentially tailored for academic and nonacademic institutions.

Academic institutions favored theoretical articles more than did nonacademic institutions. Although the size of the sample was small, the difference in the percentages is quite striking, and these findings are consistent with those from the Individuals Questionnaire. That is, individuals affiliated with nonacademic institutions more frequently selected theoretical articles as being necessary to support their information needs than did individuals affiliated with nonacademic institutions. Planning information services and products for academic and nonacademic institutions should take into consideration the relative need for different types of articles.

A number of design-relevant recommendations were offered by respondents. The recommendations contributed to four of the major types of information-processing activities, including acquiring, screening, storing, and retrieving information. Some of the recommendations are now being adopted for implementation during the second year of EPS.

REFERENCES

Kinkade, R. G. Desirable characteristics of a scientific publication system. (OCMD Tech. Rep. No. 3) Wash., D.C.: American Psychological Association, 1970.

Kinkade, R. G., & Whittenburg, J. A. The results of operating an Experimental Publication System: An interim report. (OCMD Tech. Rep. No. 2) Wash., D.C.: American Psychological Association, 1970.

Project on Scientific Information Exchange in Psychology. Reports of the American Psychological Association's Project on Scientific Information Exchange in Psychology. Vol.2. (Tech. Rep. No. 10) Wash., D.C.: American Psychological Association, 1965.